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Title: Worldwide Television Tuning System with Country Code Based Tuning

APPEAL BRIEF

To: Board of Patent Appeals and Interferences
Washington, D.C. 20231

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Pursuant to 37 C.F.R. §1.192, Applicant hereby submits an appeal brief for application 09/057,786. A Notice of Appeal was filed June 3, 2002. Accordingly, Applicant appeals to the Board of Patent Appeals and Interferences seeking review of the Examiner's rejections.

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(1) Real Party in Interest

The real party in interest is the Microsoft Corporation, the assignee of all right and title to the subject invention.

(2) Related Appeals and Interferences

Appellant is not aware of any other appeals or interferences which will directly affect, be directly affected by, or otherwise have a bearing on the Board's decision to this pending appeal.

(3) Status of Claims

Claims 1-10 and 12-44 stand rejected and are pending in this Application. Claim 11 has been canceled and no claims have been allowed. Claims 12 and 32 have been previously amended and the remaining claims are pending as originally presented. All pending claims are set forth in the Appendix of Appealed Claims on page 30.

Claims 1-2, 4-6, 8, 10, 12, 32-33, 35-38, 40-41, and 43 stand rejected under 35 U.S.C. §102(b) as being anticipated by European Patent Application EP O 723367 A2, which was filed by Sony Corporation under the lead inventor Kohashi (hereinafter, referred to as "Kohashi"). Claims 3, 7, 27-30 and 34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi. Claims 9, 13-26, 31, 39, 42, and 44 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi in view of U.S. Patent No. 5,355,162 to Yazolino et al. (hereinafter, referred to as "Yazolino").

(4) Status of Amendments

A final rejection was issued on August 2, 2001 whereupon Applicant responded to address the Examiner's rationale for the rejections of claims 1-10 and 12-42. Applicant also submitted new claims 43-44. Subsequently, an Advisory Action was issued on December 18, 2001 dismissing the Applicant's response and refusing to enter the new claims. The Office indicated in the Advisory Action that the proposed amendments in Applicant's response would not be entered for the purposes of appeal. Applicant filed a request for continuing examination on December 31, 2001. The RCE was accepted, and a non-final rejection of all pending claims was issued on March 4, 2002. No other amendments have been filed subsequent to the Examiner's rejection. However, since the case had been previously finally rejected there seemed to be no further progress on the merits, Applicant filed a Notice of Appeal on June 3, 2002.

(5) Summary of Invention

This invention concerns a worldwide tuning system that may be implemented in televisions, computing devices, or other television broadcast receiving units. The worldwide tuning system is configurable to the television standards and channel frequencies of multiple different countries, and is reconfigurable in the event any of these parameters change. As a result, the worldwide tuning system may be transported to different countries and reconfigured to local television broadcasts. Additionally, the worldwide tuning system is upgradeable in the field to accommodate any changes in television standards and channel frequencies used in various countries.

In one implementation, the worldwide tuning system is configurable based on a country's ITU long-distance country code. The tuning system maintains a country code table listing a plurality of countries according to their ITU codes. For instance, the United States has an ITU code of 1 and France has an ITU code of 33. The tuning system also maintains multiple channel-to-frequency mapping tables that provide television standards and correlate channel numbers to corresponding frequencies for associated countries in the country table. (*Specification*, Page 12, line 21 thru Page 13, line 12). The country code table contains indexes to the multiple channel-to-frequency mapping tables so that selection of a country results in an efficient reference to the specific channel-to-frequency mapping table for that country. (*Specification*, Fig. 5 and Page 13, line 24 thru Page 14, line 14). Fig. 5 of the subject application shows this table structure.

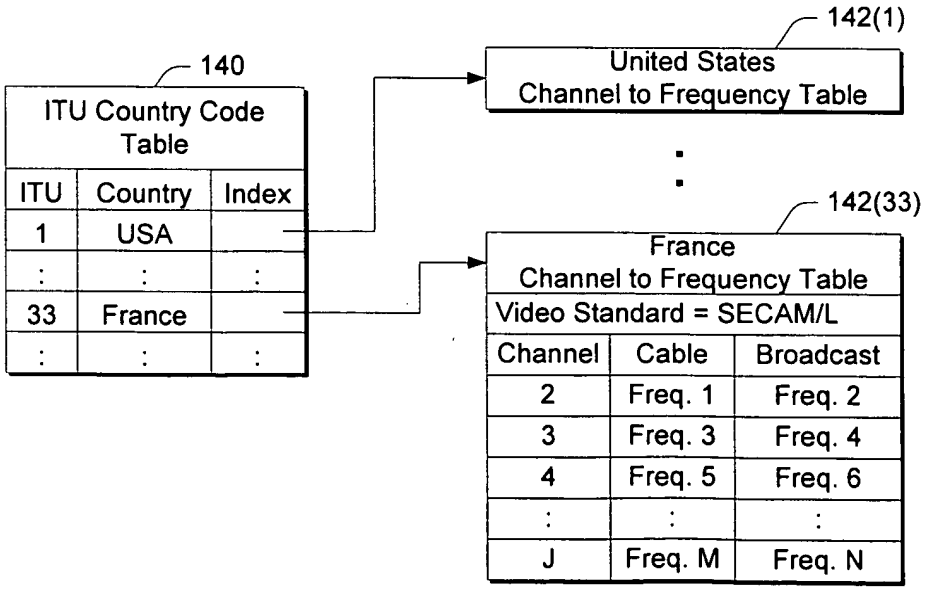

Fig. 5

The tuning system loads and saves the channel-to-frequency mapping table for subsequent use until a new and different ITU code is passed in. The tuning system utilizes the television standard listed in the channel-to-frequency mapping table for decoding broadcast television signals in the selected country.

During tuning, the user or application enters a particular channel number. The tuning system uses the channel number to lookup a corresponding television frequency in the channel-to-frequency mapping table. The tuning system then tunes to the television frequency. (*Specification* Page 13 line 24 – Page 14 line 14).

In one implementation, the television tuning system is configured in a tiered hardware/software architecture in which a software layer is architected atop a hardware layer to control the functionality of the underlying hardware components. Fig. 4 of the subject application illustrates an exemplary embodiment where the software modules are configured as filters in a filter graph.

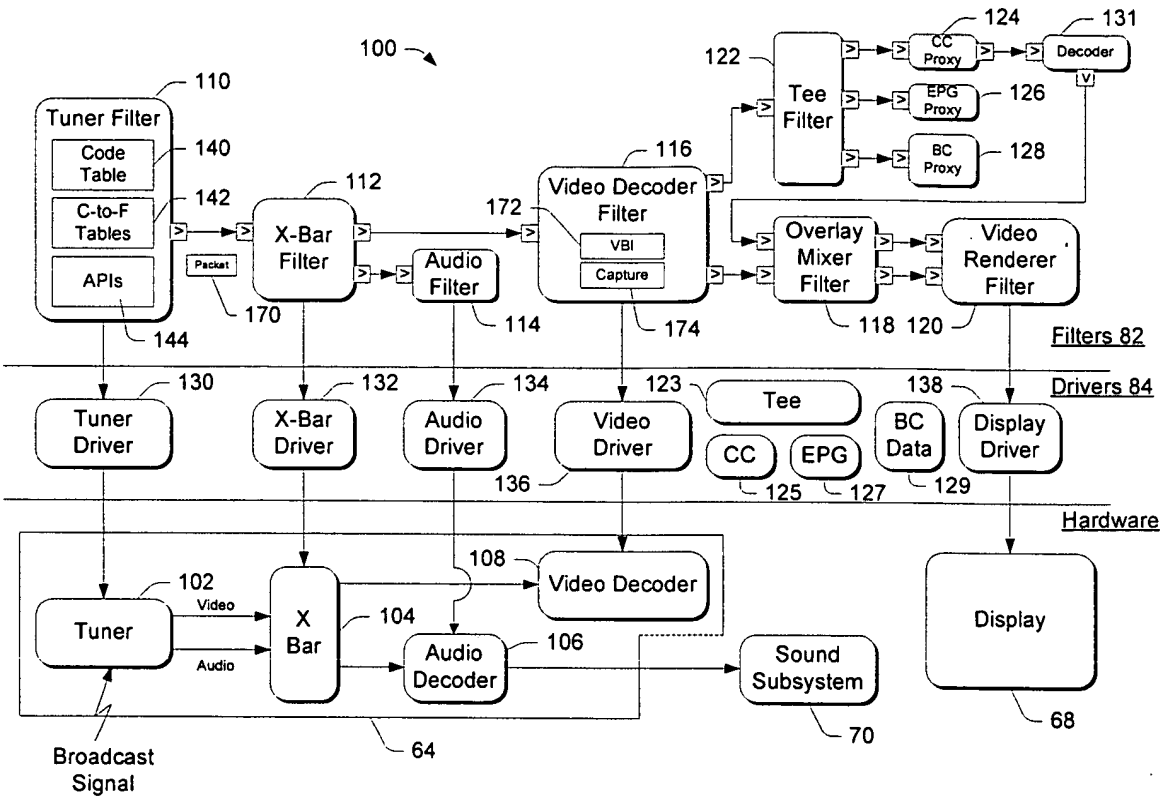

Fig. 4

As illustrated in Fig. 4, the underlying hardware components include tuner circuitry 102 that tunes to various television frequencies carrying television video signals and video decoder circuitry 108 that receives the television video signals from the tuner circuitry and converts them to digital video data. The overlying software layer is architected as plural filters 82 in a filter graph, and includes a tuner module 110 to adjust the tuner circuitry to a particular television frequency and a video decoder module 116 to decode the digital video data according to a particular video standard. A layer of drivers 84 may also be employed to interface the software filter components with the tuner and decoder circuitry. (*Specification*, Fig. 4 and Page 10, line 18 thru Page 12, line 20).

The software tuner module implements the country code table and the multiple channel-to-frequency mapping tables described above. (*Specification*, Page 13, lines 3-7). The tuner module selects a channel-to-frequency mapping table based upon input of a particular country and outputs a video standard to the video decoder for use in decoding the digital video data. The tuner module selects a television frequency from the selected channel-to-frequency mapping table based upon input of a corresponding channel and outputs the selected television frequency to the tuner circuitry to cause the tuner circuitry to tune to the selected television frequency.

The software tuner module may be implemented as a replaceable dynamic linked library (DLL). In the event changes are made to broadcast television standards and channel frequencies within one or more countries, and as new countries are created or old countries cease to exist, a new tuner DLL can be downloaded and used to replace the out-of-date tuner DLL without affecting operation of the tuning system or needing to replace the tuner circuitry. (*Specification*, Page 21, lines 1-6).

The tuner module may be further configured to support an application program interface (API) to expose the tuner functionality to an application program. (*Specification*, Page 13, lines 13-23; Page 19, line 14 thru Page 20, line 14). The API enables applications to set video standards, set TV channels, and to get or set information about the channel frequencies. This interface can also determine what analog video standards your TV supports. Generally, the API includes methods for performing the following functions:

1. Retrieve pointers to supported interfaces
2. Increment reference count of tuner filter object
3. Decrement reference count of tuner filter object
4. Retrieve all analog video TV standards supported by the tuner
5. Retrieve the current analog video TV standard in use
6. Set the TV channel
7. Retrieve current TV channel
8. Retrieve the highest and lowest channels available
9. Scan for a precise signal on the channel's frequency
10. Set the country code to establish the frequency set
11. Retrieve the country code
12. Set a storage index for regional channel to frequency mappings
13. Retrieve the storage index for regional fine tuning
14. Retrieve the number of TV sources plugged into the tuner filter
15. Set the tuner input type (cable or antenna)
16. Retrieve the tuner input type (cable or antenna)
17. Set the hardware tuner input connection
18. Retrieve the hardware tuner input connection
19. Retrieve the current video frequency
20. Retrieve the current audio frequency

A detailed list of the methods in the tuner API is found in the subject application.

The worldwide tuning system enables worldwide tuning based on ITU country code, allowing it to be configured in the field rather than at the factory.

Additionally, if standards or channel frequencies change, the tuning system can be reconfigured by downloading a new tuner module without affecting the hardware elements. The worldwide tuning system is also portable. It can be implemented in portable computers and reconfigured to receive different television broadcasts as the user travels to different countries. (*Specification*, Page 21, lines 10-18). As a result, a manufacturer can make one television product, which can be shipped anywhere in the world. Once arriving at a particular country, the television product can be configured to the standards and frequencies of that country either automatically, or via a simple user interface. (*Specification*, Page 8, lines 14-22).

(6) Issue

Whether claims 1-2, 4-6, 8, 10, 12, 32-33, 35-38, 40-41, and 43 are properly rejected under 35 U.S.C. §102(b) as being anticipated by Kohashi?

Whether claims 3, 7, 27-30 and 34 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi?

Whether claims 9, 13-26, 31, 39, 42, and 44 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi in view of Yazolino?

(7) Grouping of Claims

Claims 1, 2, 4, 5, 6, 8, 10, 12, 32, 33, 35-38, 40-41, and 43 stand rejected under 35 U.S.C. §102(b). Claims 3, 7, 9, 13-31, 34, 39, 42, and 44 stand rejected under 35 U.S.C. §103(a). The set of pending claims can be separated into five groupings of claims that are separately patentable and independently stand or fall together as a group. The claim groupings are as follows:

A. Claims 13-14, 16, 18-23, and 44 stand or fall together.

B. Claims 17 and 25-27 stand or fall together.

C. Claims 12 and 40-42 stand or fall together.

D. Claims 9, 15, and 24 stand or fall together.

E. Claims 1-8, 10, 28-39, and 43 stand or fall together.

(8) Argument

The following argument is organized into five concise sub-arguments, one for each of the claim groupings.

(1) The Cited Combination of Kohashi and Yazolino Does Not Teach or Suggest a Television Tuning System having Dedicated Software Modules that Control Underlying and Associated Hardware Components

All claims in grouping *A* (claims 13-14, 16, 18-23, and 44) stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi in view of Yazolino.

Claim 13 is representative of claim grouping *A*. Claim 13 is directed generally towards a television tuning system with a tiered hardware/software architecture in which software modules are layered atop underlying hardware components to control specific functionality. Fig. 4 in the subject application, which is also reproduced above in the Summary of Invention section, shows one implementation of an exemplary tiered architecture in which the software modules are implemented as filters in a filter graph. As one example of the architecture, the tuner functionality of the television tuning system is performed by hardware tuner circuitry in combination with a software tuner module. The software tuner

module adjusts the tuner circuitry to tune to various television frequencies. In the event changes are made to broadcast television standards and channel frequencies within one or more countries, and/or as new countries are created, or old countries cease to exist, the software tuner module can be updated without affecting the underlying hardware tuner circuitry.

Claim 13 defines a television tuning system with this tiered hardware/software architecture, reciting in pertinent part:

> tuner circuitry to tune to various television frequencies carrying television video signals;
>
> video decoder circuitry coupled to receive a television video signal from the tuner circuitry and to convert the television video signal to digital video data;
>
> a tuner module coupled to adjust the tuner circuitry to a particular television frequency;
>
> a video decoder module to decode the digital video data according to a particular video standard;
>
> wherein the tuner module has a country table listing a plurality of countries and multiple channel-to-frequency mapping tables that provide video standards and correlate channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country; and
>
> wherein the tuner module selects a channel-to-frequency mapping table based upon input of a particular country and outputs a video standard to the video decoder for use in decoding the digital video data, the tuner module further selecting a television frequency from the selected channel-to-frequency mapping table based upon input of a corresponding channel and outputting the selected television

frequency to the tuner circuitry to cause the tuner circuitry to tune to the selected television frequency.

The combination of Kohashi and Yazolino fails to teach or suggest the television tuning system of claim 13.

Kohashi describes a television channel selection apparatus (described as a VCR) that allows a user to input country and/or language information into a hardware component to establish preferred video decoding formats for a given country. In contrast to Applicant's architecture recited in claim 13, Kohashi describes a hardware-based solution to a channel selection system. The Kohashi system of Fig. 1 is comprised of a tuner circuit 2, a microprocessor 3, a video signal recording circuit 4, a video signal detection circuit 5, a broadcasting station code circuit 6, and various memories 7-11. Thus, Kohashi teaches a single-layer hardware architecture. There is no multi-layered architecture where a software layer is architected atop a hardware layer to control the underlying hardware components, as recited in claim 13. While Kohashi describes a routine for automatic channel presetting operation that can be executed on microprocessor 3 (*Kohashi*, Figs. 3-6 and accompanying text), this routine is executed during an initialization phase to identify stations and frequencies. Kohashi is silent as to the recited "tuner module" and "video decoder module" in claim 13.

Yazolino describes a multi-standard cable television system for use in hospitals, schools, condominiums, and hotels. More specifically, it describes a cable television system in which a multiplicity of television program sources provide television signals in various predefined television signal formats. The program sources include continuous television sources provided to all users free of charge as well as pay-per-view program sources transmitted to users only upon

request. Each television in the system has a multi-standard receiver for receiving television signals in those predefined television signal formats, and is coupled to a transmission medium such as a coaxial cable.

Hidden behind each television, or elsewhere out of view of the user, is a converter coupling the respective television to the transmission media. As shown in Fig. 3 of Yazolino, the converter includes a tuner 154, a CPU 156, a video demodulator 160, a filter 162, and a remodulator 184. There is no multi-layered architecture, however, where a software layer is architected atop a hardware layer to control the underlying hardware components, as recited in claim 13. While Yazolino discloses programs that can be run on the CPU 156, the described programs include control programs 212 that generate a sequence of menus during installation to prompt the installer to enter the room number in which the converter box is located (*Yazolino*, Col. 14, lines 43-58) and wireless command decoder programs 150 to decode commands from a remote controller. The programs are not related to tuning and video decoding.

The combination of Kohashi and Yazolino fail to teach or suggest the structure of claim 13, namely, "tuner circuitry to tune to various television frequencies carrying television video signals", "video decoder circuitry coupled to receive a television video signal from the tuner circuitry and to convert the television video signal to digital video data", "a tuner module coupled to adjust the tuner circuitry to a particular television frequency", and "a video decoder module to decode the digital video data according to a particular video standard."

In its rejection of claim 13, the Office cites Fig. 1 of the Kohashi reference as disclosing tuner circuitry at element 2, video decoder circuitry at elements 3, 5, and 15, a tuner module at elements 2, 3, 6, 7, 8, 9, 10, and 12, and the video

decoder module at elements 15 and 16. (*Office Action* of 3/4/2002, Page 14, 1st thru 5th paragraphs). Yazolino is not directly mentioned in the rejection of claim 13.

Applicant respectfully disagrees with the Office's application of Kohashi to the features claim 13. Examination of these Kohashi elements cited by the Office reveals that elements 2, 5, 6 and 15 are hardware circuits, element 3 is a microprocessor, elements 7-10 are memory for the microprocessor, element 12 is a remote control, element 15 is an on-screen display circuit, and element 16 is a television monitor. The following table more specifically identifies the cited elements in Kohashi:

Cited Kohashi Element	What it is…
Element 2	Tuner circuit
Element 3	Microprocessor
Element 5	Video signal detection circuit
Element 6	Broadcasting station code detection circuit
Elements 7-10	Memory
Element 12	Handheld remote controller
Element 15	On-screen display circuit
Element 16	Television monitor

According to the Office, the claim 13 "tuner module" that "adjust[s] the tuner circuitry to a particular television frequency" is taught by tuner circuit 2, microprocessor 3, broadcasting station code detection circuit 6, memories 7-10,

and handheld remote controller 12. Similarly, the claim 13 "video decoder module", which is separate from the video decoder circuitry and "decode[s] the digital video data according to a particular video standard", is taught by the on-screen display circuit 15 and the television monitor 16.

It is plain from this analysis that the Office's application of Kohashi to the claimed features is incorrect, as none of the elements cited by the Office pertain to the claimed software-based tuner and video decoder modules. As Yazolino is not specifically cited by the Office for claim 13, and does not provide any of the absent teaching, the combination of Kohashi and Yazolino fail to teach or suggest the system of claim 13. For these reasons, claim 13 is allowable over the cited combination.

Based on the above reasons, Applicant respectfully requests that claim grouping *A* be allowed. The remaining claims of grouping *A* are also patentable over the cited Kohashi/Yazolino combination, and benefit from the above arguments.

For example, **claim 16** defines "a second tuner module different from the tuner module" whereby the second tuner module is "used to replace the tuner module during upgrade without replacing the tuning circuitry and the decoding circuitry." Since neither Kohashi nor Yazolino teaches or suggests an architecture that employs software modules to control underlying hardware components, they are silent as to the ability to replace the software modules with updated versions without replacing the tuning and decoding circuitry.

In its rejection of claim 16, the Office admits that Kohashi does not specifically disclose software embodiments. (*Office Action* of 3/4/2002, Page 13, 2nd paragraph). However, the Office maintains that Yazolino teaches software

elements 212 and 150 and hence render obvious claim 16. Applicant disagrees. *First*, as mentioned above, Yazolino fails to teach the architecture of claim 13 from which claim 16 depends. Yazolino does not suggest "tuner circuitry to tune to various television frequencies carrying television video signals" and "a tuner module coupled to adjust the tuner circuitry to a particular television frequency" as recited in claim 16. *Second*, the software elements cited by the Office have nothing to do with tuning. In Yazolino's cable-based on-demand system, the cited software elements 212 and 150 are implemented in a converter box placed in individual hotel rooms. Software element 150 is used to generate a sequence of menus during installation to prompt the installer to enter the hotel room number in which the converter box is located (*Yazolino*, Col. 14, lines 43-58) and software element 150 is used to decode commands from a remote controller. *Third*, there is no discussion whatsoever of the need to replace these software elements 212 and 150 without replacing tuning circuitry. Indeed, there'd be no reason to replace installation software (i.e., element 212) and remote controller decoding software (i.e., element 150).

For these additional reasons, claim 16 is also allowable.

Claim 19 describes a television tuning manager for a television tuner that is "implemented in software stored on a computer-readable storage medium." The television tuning manager includes a country table listing, multiple channel-to-frequency mapping tables, "a code segment to select a channel-to-frequency mapping table based upon input of a particular country" and "a code segment to output a broadcast frequency from the selected channel-to-frequency mapping table based upon input of a corresponding channel." For the reasons given above, this software-based manager is not taught or suggested by the cited combination.

Claim 44 is directed to a computer program that determines an "appropriate video standard based on at least one of the selected country and selected channel" and "format[s] a tuning component to the appropriate video standard." The cited combination fails to teach this software program used to control tuning.

Applicant respectfully requests allowance of all claims in grouping *A*.

(2) The Cited References Fail to Teach or Suggest Use of an API in a Television Tuning System

Within grouping *B* (17 and 25-27), claims 17, 25, and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable by Kohashi in view of Yazolino, and claim 27 stands rejected under §103(a) as being unpatentable over Kohashi.

Claim 17 depends from claim 13, and therefore includes all of the limitations thereof. As discussed above, the combination of Kohashi and Yazolino does not teach or suggest the television tuning system having "tuner circuitry", "video decoder circuitry", "a tuner module coupled to adjust the tuner circuitry", and "a video decoder module to decode the digital video data according to a particular video standard."

Claim 17 further recites, however, that the "tuner module supports an application program interface to expose functionality of the tuner module to an application program."

The cited combination is entirely void of any teaching or suggestion of using an API to expose tuner functionality. In fact, the Office admits that "[n]either Kohashi nor Yazolino specifically discloses that the software supports API." (*Office Action* dated 3/4/2002, Page 16, 1st paragraph). However, the Office takes Official Notice that APIs are "well known in the computer art" and

therefore it would have been obvious to "modify Kohashi in combination with Yazolino by using API so that the Kohashi and Yazolino's application software could use those set of routine (API) [*sic*] to direct the performance of procedures by the computer OS". (*Office Action* dated 3/4/2002, Page 16, 2nd paragraph). In some additional remarks pertaining to claim 17, the Office further states:

> Since Kohashi's system comprises a CPU to process all the functions claimed with respect to the country codes and information stored in memories as a relational Database, Kohashi's system must have OS (operating system) and software application so to perform these sets of routines or functions on its system as disclosed. Since API is well known in the computer art under Microsoft Windows environment, an ordinary skill in the art would have been obvious to modify Kohashi's system to perform under Microsoft Windows environment with ease. (*Office Action* dated 3/4/2002, Pages 6-7, bridging paragraph).

Applicant disagrees with the Office's assessment. *First*, there is no evidence cited by the Office in the cited references or otherwise of any use of APIs for tuning functionality in a television tuning system. Applicant respectfully requests that the Office produce such evidence to support its Official Notice. *Second*, the fact that APIs, in general, are well known in the computer art does not necessarily render obvious the use of specific APIs designed and supported by a television tuning module in a television tuning system. Applicant's claimed system is a completely new architecture for tuning systems. The specific APIs

employed offer many significant advantages. Prior art systems did not even contemplate use of APIs, and the references clearly do not show any systems capable of supporting such a design.

Third, the Office's proposed redesign of Kohashi is neither "obvious" nor "easy", but is based purely on hindsight reconstruction, which is impermissible. The Office contends that since Kohashi (and Yazolino for that matter) employ a CPU, they must have an OS and software applications. From this, the Office asserts an incredibly broad oversimplification that it would be obvious to reconfigure Kohashi in order to implement APIs so that "Kohashi's system [could] perform under the Microsoft Windows environment with ease." Even assuming Kohashi employs some low-level operating system (which is not expressly taught), the logical leap that such Kohashi's VCR can be easily reconfigured to support APIs is unsupported by the references itself, or any other art cited by the Office. Kohashi does not discuss or hint at ways to alter or adapt the VCR system to other configurations, and the Office does not provide any support for attempting such alteration. Furthermore, the Office's logical leap is not supported by the norms of product design and development. It is a rather significant undertaking to redesign a VCR system that runs a few set up routines to a completely different architecture in which a software tuner module controls tuning circuitry and exposes tuning functionality via an API to other application programs. Such an undertaking is well outside any reasonable realm of inherency and Official Notice, especially when the very references provide not desire or clues as to such redesign.

For these reasons, claim 17 is allowable over the cited references.

Claim 25 benefits from the same argument.

Claims 26 and 27 are independent claims directed toward specific APIs for a television tuning system. For instance, claim 27 recites an application program interface embodied on a computer-readable medium and having methods for performing the following functions:

> retrieving all analog video TV standards supported by the tuning system;
>
> retrieving a current analog video TV standard in use;
>
> setting a current TV channel;
>
> retrieving the current TV channel;
>
> retrieving highest and lowest channels available;
>
> scanning for a precise signal on the current TV channel's frequency;
>
> setting a country code;
>
> retrieving the country code;
>
> setting a storage index for regional channel to frequency mappings;
>
> retrieving the storage index;
>
> retrieving a number of TV sources plugged into the tuning system;
>
> setting a type of tuning system;
>
> retrieving the type of tuning system;
>
> retrieving a current video frequency; and
>
> retrieving a current audio frequency.

As noted above, Kohashi and Yazolino are silent as to any use of APIs in a television tuning system. Therefore, these references are equally void of any teaching of a specific set of APIs. For these additional reasons, claims 26 and 27 are patentable over the cited references.

Accordingly, Applicant respectfully requests withdrawal of the §103 rejections and allowance of all claims 17 and 25-27 in grouping *B*.

(3) Kohashi Does Not Disclose or Teach a Tuner Module that Restores Tuning Frequencies after Transportation of the Tuning System to a Pre-Known Locale

Within grouping *C* (12 and 40-42), claims 12, 40 and 41 stand rejected under 35 U.S.C. §102(b) as being anticipated by Kohashi, and claim 42 stand rejected under §103(a) as being unpatentable over Kohashi in view of Yazolino. Claim 12 is representative of claim grouping *C*.

Claim 12 defines a tuner comprising "tuner circuitry" and "a tuner module coupled to adjust the tuner circuitry to scan multiple channels within a particular locale for corresponding tuning frequencies, the tuner module storing the tuning frequencies for the particular locale". Claim 12 further recites that "upon transporting the tuner to a new locale, the tuner module scans multiple channels within the new local for corresponding tuning frequencies" and "upon transporting the tuner back to the particular locale, the tuner retrieves the stored tuning frequencies to restore operation in the particular locale."

Kohashi does not disclose such features. While Kohashi's VCR implements an automatic channel presetting operation (*Kohashi*, Figs. 3-6), nowhere does Kohashi describe a tuner module that stores frequencies for a

particular locale such that, when the tuner is transported to a new local (and set to new frequencies) and then transported back to the particular local, the tuner module is able to retrieve the stored tuning frequencies to restore operation in the particular locale.

The Office contends:

> ...since Kohashi's system performs "an automatic channel presetting mode" and stored all the available tuning frequencies in memory and the action of retrieving the stored tuning frequencies to restore operation in the particular locale upon transporting the tuner back to the particular locale is *inherent* because, once the user transports the tuner back to the particular local [*sic*], the user just re-enters (inputs back) the particular local location so the system could retrieve the stored tuning frequencies as discloses [*sic*] by Kohashi (Col. 5, lines 15-22). (Emphasis added). (*Office Action* of 3/4/2002, Page 5, 2nd paragraph).

Applicant respectfully disagrees. Nowhere does Kohashi disclose the ability or desire to recall stored tuning frequencies upon transportation of the tuner. Instead, if a Kohashi VCR was ever transported to another locale and then back again (which is nowhere suggested by Kohashi), it is more likely that Kohashi would simply rerun the entire automatic channel presetting operation. Accordingly, the claimed tuner functionality is not "inherent" in Kohashi as the Office contends.

The Office further cites column 5, lines 15-22 of Kohashi for support. However, this excerpt merely describes that the automatic channel presetting operation utilizes country and language inputs as a way to narrow the scope of search when identifying various broadcasting station identifications. During the initial set up of the VCR, entry of a country language narrows the field of possible broadcast stations, thus reducing search time. The excerpt is entirely void of any discussion of "a tuner module ... storing the tuning frequencies for the particular locale" so that "upon transporting the tuner back to the particular locale, the tuner retrieves the stored tuning frequencies to restore operation in the particular locale" as required by claim 12. Accordingly, claim 12 is patentable over Kohashi.

Claims 40-41 benefit from the same arguments.

Claim 42, which depends from claim 40, stands rejected under §103 in view of both Kohashi and Yazolino. Kohashi is silent as to features of claim 40, and further fails to suggest any need or desire for "storing the tuning frequencies for the first locale" and "upon transporting the tuning system back to the first locale [from a second locale], retrieving the stored tuning frequencies to restore operation in the first locale." Yazolino provides no additional support. Yazolino describes an on-demand system for hotels and condominiums that are intended to be permanently installed and not transported about. It does not envision portability. Therefore, there would be no benefit in Yazolino to equip its converter boxes with such capabilities as recited in claims 40 and 42. Thus, the combination of Kohashi and Yazolino fails to teach or suggest the features of claim 42.

Applicant respectfully requests allowance of claims 12 and 40-42 in claim grouping *C*.

(4) Kohashi Does Not Teach or Suggest a Dynamic Linked Library Implementation

All claims in grouping *D* (claims 9, 15, and 24) stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi in view of Yazolino.

Claim 9 is representative of claim grouping *D*. Claim 9 depends from claim 5 and hence incorporates the features of claim 5. As such, claim 9 requires "multiple channel-to-frequency mapping tables correlating channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country." Claim 9 further specifies that the television tuning component of claim 5 be "embodied in software as a dynamic linked library stored on a computer-readable storage medium."

The cited Kohashi/Yazolino combination fails to teach or suggest a software-based tuning component that is implemented as a dynamic linked library (DLL). The Office admits that "[n]either Kohashi nor Yazolino specifically disclose embodied in software as a dynamic linked library (DLL)." (*Office Action* dated 3/4/2002, Page 13, 4th paragraph). But, once again, the Office takes Official Notice that DLLs are well known in the computer art under Microsoft Windows environment. The Office argues that it would have been obvious to modify Kohashi by "developing software for a specific television tuning system, as DLL file, so that the DLL file does not consume memory until it is used, and because DLL is a separate file, a programmer can make corrections or improvements to

only that module without affecting the operation of the calling program or any other DLL files." (*Office Action* dated 3/4/2002, Page 13, 5th paragraph).

While the Office points out advantages of using DLLs in general, the Office fails to provide any evidence as to how the skilled artisan would be lead to reinvent Kohashi's system into a structure that utilizes DLLs from the teachings of Kohashi. Moreover, the Office has failed to make a *prima facie* case of obviousness if the skilled artisan, with full knowledge of the teachings of the cited references, is still required to "*develop[] software* for a specific television tuning system" as the Office contends. The references should, on their face, teach the skilled artisan how to make and use the invention; it should not be left to the skilled artisan to "develop software" on their own. As a final point, the Office provides no evidence that the Kohashi system is capable of accepting the proposed modifications. If this rejection is maintained, Applicant respectfully requests that the Office produce such evidence in support of the Official Notice that DLLs are well known to be used in VCRs, converter boxes, or tuning apparatuses like the ones described in Kohashi and Yazolino.

For these reasons, Applicant respectfully requests that the §103 rejection of claims 9, 15, and 24 in claim grouping *D* be withdrawn.

(5) **Kohashi Does Not Disclose Channel-to-Frequency Mapping Tables being Indexed by a Country Table**

Within claim grouping *E* (claims 1-8, 10, 28-39, and 43), claims 1-2, 4-6, 8, 10, 32-33, 35-38, and 43 stand rejected under §102(b) as being anticipated by Kohashi. Claims 3, 7, 28-30, and 34 stand rejected under §103(a) as being unpatentable over Kohashi. Claims 31 and 39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kohashi in view of Yazolino.

Claim 1 is representative of claim grouping *E*. Claim 1 recites:

> 1. A television tuner comprising:
>
> a country table listing a plurality of countries;
>
> multiple channel-to-frequency mapping tables correlating channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country; and
>
> a tuning device to tune to a particular frequency within the channel-to-frequency mapping table associated with the selected country upon selection of a corresponding channel.

Fig. 5 in the subject application shows one exemplary implementation of the table structures in the claimed television tuner. The table structures include a country table 140 and multiple channel-to-frequency mapping tables 142(1), ...142(33), ... 142(N). The country table 140 contains indexes to corresponding channel-to-frequency tables 142(1)-(N). Accordingly, selection of a country in country table 140 references one of the channel-to-frequency tables.

Kohashi does not describe a tuner system with multiple channel-to-frequency mapping tables that are indexed by the country table as claimed.

Kohashi's VCR system utilizes an assortment of tables, including a single table relating channel numbers to frequencies (*Kohashi*, Fig. 2a, Col. 8, lines 32-35), a table relating broadcasting station codes to stations names (*Kohashi*, Fig. 2b, Col. 8, lines 36-39), a table relating countries (or languages) and preferential orders of video formats (*Kohashi*, Fig. 2c, Col. 8, lines 40-44), a table relating the formats and search times (*Kohashi*, Fig. 2d, Col. 8, lines 44-46), and a table relating positions with channels and broadcasting station codes (*Kohashi*, Fig. 2e, Col. 8, lines 53-56). Thus, Kohashi shows a single table associating channels with frequencies and another table with that associates country languages with a preferential order of video formats. Nowhere, however, does Kohashi disclose "*multiple* channel-to-frequency mapping tables *being indexed by the country table* so that *selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country*" of claim 1.

The Office argues that Kohashi anticipates this element of claim 1 "based on the corresponding relationship (relational database) in retrieval preferential order between the countries and the plurality of kinds of broadcasting station identification information." (*Office Action* dated 03/04/02, page 2, last paragraph). The Office continues that "a relational database matches information from a field in one table (Fig. 2a) with information in a corresponding field of another table (Fig. 2b) to produce a third table (Fig. 2e) that combines data from both tables." (*Office Action* dated 03/04/02, pages 2-3, bridging paragraph).

Even assuming Kohashi uses a relational database as the Office argues, the Office still has not identified where or how Kohashi discloses "multiple channel-to-frequency mapping tables" that are "indexed by the country table so that selection of a country in the country table references an associated channel-to-

frequency mapping table for the selected country." In Kohashi, selection of a country language in the Fig. 2c table identifies a preferential video format order. Even assuming that selection of a country in table Fig. 2c somehow references the channel/frequency table of Fig. 2a, this table seems to be static, providing only one set of channel to frequency mappings. Thus, selection of a country in table Fig. 2c does not result in reference to a specific channel-to-frequency mapping table from a set of multiple channel-to-frequency mapping tables.

For these reasons, claim 1 is allowable over this Kohashi. The remaining claims of claim grouping *E* benefit from the above arguments. Accordingly, Applicant respectfully requests allowance of all claims 1-8, 10, 28-39, and 43 in claim grouping *E*.

Conclusion

Applicant respectfully requests that the §102 rejection be overturned and that pending claims 1, 2, 4, 5, 6, 8, 10, 12, 32, 33, 35-38, 40-41, and 43 be allowed to issue. Applicant further requests that the §103 rejection be overturned and that pending claims 3, 7, 9, 13-31, 34, 39, 42, and 44 be allowed to issue.

Respectfully Submitted,

Dated: Nov. 1, 2002 By: _____

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(9) Appendix of Appealed Claims

1. A television tuner comprising:

a country table listing a plurality of countries;

multiple channel-to-frequency mapping tables correlating channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country; and

a tuning device to tune to a particular frequency within the channel-to-frequency mapping table associated with the selected country upon selection of a corresponding channel.

2. A television tuner as recited in claim 1, wherein the country table lists the countries according to a uniquely assigned country code.

3. A television tuner as recited in claim 1, wherein the country table lists the countries according to an International Telecommunications Union (ITU) code.

4. A television tuner as recited in claim 1, wherein the channel-to-frequency mapping tables also contain a television standard for the associated countries.

5. A television tuning component for a television tuning system, comprising:

a country table listing a plurality of countries; and

multiple channel-to-frequency mapping tables correlating channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country and selection of a channel in the channel-to-frequency mapping table maps to a corresponding frequency.

6. A television tuning component as recited in claim 5, wherein the country table lists the countries according to a uniquely assigned country code.

7. A television tuning component as recited in claim 5, wherein the country table lists the countries according to an International Telecommunications Union (ITU) code.

8. A television tuning component as recited in claim 5, wherein the channel-to-frequency mapping tables also contain a television standard for the associated countries.

9. A television tuning component as recited in claim 5, embodied in software as a dynamic linked library stored on a computer-readable storage medium.

10. A television tuner incorporating the television tuning component as recited in claim 5.

11. Cancelled

12. (Amended) A tuner, comprising:

tuner circuitry to tune to various television frequencies carrying television video signals;

a tuner module coupled to adjust the tuner circuitry to scan multiple channels within a particular locale for corresponding tuning frequencies, the tuner module storing the tuning frequencies for the particular locale;

upon transporting the tuner to a new locale, the tuner module scans multiple channels within the new local for corresponding tuning frequencies; and

upon transporting the tuner back to the particular locale, the tuner retrieves the stored tuning frequencies to restore operation in the particular locale.

13. A television tuning system comprising:

tuner circuitry to tune to various television frequencies carrying television video signals;

video decoder circuitry coupled to receive a television video signal from the tuner circuitry and to convert the television video signal to digital video data;

a tuner module coupled to adjust the tuner circuitry to a particular television frequency;

a video decoder module to decode the digital video data according to a particular video standard;

wherein the tuner module has a country table listing a plurality of countries and multiple channel-to-frequency mapping tables that provide video standards and correlate channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country; and

wherein the tuner module selects a channel-to-frequency mapping table based upon input of a particular country and outputs a video standard to the video decoder for use in decoding the digital video data, the tuner module further selecting a television frequency from the selected channel-to-frequency mapping table based upon input of a corresponding channel and outputting the selected television frequency to the tuner circuitry to cause the tuner circuitry to tune to the selected television frequency.

14. A television tuning system as recited in claim 13, wherein the country table lists the countries according to an International Telecommunications Union (ITU) code.

15. A television tuning system as recited in claim 13, wherein the tuner module is embodied as a dynamic linked library.

16. A television tuning system as recited in claim 13, further comprising a second tuner module different from the tuner module, the second tuner module being used to replace the tuner module during upgrade without replacing the tuning circuitry and the decoding circuitry.

17. A television tuning system as recited in claim 13, wherein the tuner module supports an application program interface to expose functionality of the tuner module to an application program.

18. A television tuning system as recited in claim 13, wherein the tuner module stores a set of television frequencies that map to corresponding channels within the particular country for subsequent retrieval.

19. A television tuning manager for a television tuner, the television tuning manager being implemented in software stored on a computer-readable storage medium, the television tuning device comprising:

a country table listing a plurality of countries;

multiple channel-to-frequency mapping tables correlating channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country;

a code segment to select a channel-to-frequency mapping table based upon input of a particular country; and

a code segment to output a broadcast frequency from the selected channel-to-frequency mapping table based upon input of a corresponding channel.

20. A television tuning manager as recited in claim 19, wherein the country table lists the countries according to a uniquely assigned country code.

21. A television tuning manager as recited in claim 19, wherein the country table lists the countries according to an International Telecommunications Union (ITU) code.

22. A television tuning manager as recited in claim 19, wherein the channel-to-frequency mapping tables also contain a television standard for the associated countries.

23. A television tuning manager as recited in claim 19, further comprising a code segment to store a set of broadcast frequencies that map to corresponding channels within the particular country for subsequent retrieval.

24. A television tuning manager as recited in claim 19, embodied as a software dynamic linked library stored on a computer-readable storage medium.

25. A television tuning manager as recited in claim 19, embodied as a computer software module that is dynamically accessible by an application program, the television tuning manager further comprising an application program interface to expose functionality of the television tuning manager to the application program.

26. An application program interface for a television tuning system, the application program interface being embodied on a computer-readable medium and having methods for performing the following functions:

setting a current TV channel;

retrieving the current TV channel;

setting a country code;

retrieving the country code;

setting a storage index for regional channel to frequency mappings; and

retrieving the storage index.

27. An application program interface for a television tuning system, the application program interface being embodied on a computer-readable medium and having methods for performing the following functions:

retrieving all analog video TV standards supported by the tuning system;

retrieving a current analog video TV standard in use;

setting a current TV channel;

retrieving the current TV channel;

retrieving highest and lowest channels available;

scanning for a precise signal on the current TV channel's frequency;

setting a country code;

retrieving the country code;

setting a storage index for regional channel to frequency mappings;

retrieving the storage index;

retrieving a number of TV sources plugged into the tuning system;

setting a type of tuning system;

retrieving the type of tuning system;

retrieving a current video frequency; and

retrieving a current audio frequency.

28. A method comprising the following steps:

receiving an ITU (International Telecommunications Union) code for a particular country; and

selecting, based on the ITU code, a set of TV channel-to-TV frequency mappings for use in the particular country.

29. A method as recited in claim 28, further comprising the step of selecting, based on the ITU code, a TV standard for use in the particular country.

30. A method as recited in claim 28, further comprising the step of storing the selected set of TV channel-to-TV frequency mappings.

31. A computer-readable medium having computer-executable instructions for performing the steps in the method as recited in claim 28.

32. (Amended) A method comprising the following steps:

receiving a reference to a country;

selecting, based on the country reference, a set of channel-to-frequency mappings correlating channels to corresponding TV frequencies in the country;

receiving a channel; and

selecting, based on the channel, a TV frequency that maps to the channel.

33. A method as recited in claim 32, further comprising the step of tuning to the TV frequency.

34. A method as recited in claim 32, wherein the country reference is an ITU (International Telecommunications Union) code.

35. A method as recited in claim 32, further comprising the step of selecting, based on the country reference, a TV standard for the country.

36. A method as recited in claim 32, further comprising the step of scanning for a better quality frequency within the channel.

37. A method as recited in claim 32, wherein the step of selecting a set of channel-to-frequency mappings comprises the following steps:

looking up the country in a country table that lists multiple countries; and

indexing from an entry for the country in the country table to a particular channel-to-frequency table, the particular channel-to-frequency table containing mappings of channel numbers to TV frequencies for the country.

38. A method as recited in claim 37, wherein the step of selecting a TV frequency comprises the step of looking up in the particular channel-to-frequency table a TV frequency that corresponds to the channel.

39. A computer-readable medium having computer-executable instructions for performing the steps in the method as recited in claim 32.

40. A method comprising the following steps:

configuring a tuning system for operation in a first locale by determining tuning frequencies for an associated set of channels;

storing the tuning frequencies for the first locale;

upon transporting the tuning system to a second locale, reconfiguring the tuning system for operation in the second locale; and

upon transporting the tuning system back to the first locale, retrieving the stored tuning frequencies to restore operation in the first locale.

41. A method as recited in claim 40, wherein the configuring step comprises the step of scanning for optimal tuning frequencies for the associated set of channels.

42. A computer-readable medium having computer-executable instructions for performing the steps in the method as recited in claim 40.

43. A tuning system comprising:

a country table listing a plurality of countries; and,

multiple channel-to-frequency mapping tables correlating channel numbers to corresponding frequencies for associated countries in the country table, the channel-to-frequency mapping tables being indexed by the country table so that selection of a country in the country table references an associated channel-to-frequency mapping table for the selected country, and wherein said tuning system adjusts to a particular video standard based on a selected channel from one of the multiple channel-to-frequency mapping tables.

44. One or more computer-readable media having computer readable instructions thereon which, when executed by a computer, cause the computer to:

receive data regarding a selected country;

map to channels available for the selected country;

receive data regarding a selected channel;

map to an appropriate video standard based on at least one of the selected country and selected channel; and,

format a tuning component to the appropriate video standard.